

mobility and impairment. Using SAS and SUDAAN statistical programs, correlational and general linear model procedures tested the null hypothesis that among women and men, having arthritis and diabetes mellitus is not positively associated with needing special equipment to walk. Variables were fitted in general linear model to perform further analysis and control for possible confounding variables.

**Results:** The null hypothesis was rejected. Among women, having arthritis was positively associated with needing special equipment to walk ( $r=+0.236$ ,  $p<0.0001$ ,  $N=2,622$ ). Having diabetes mellitus also was positively related to needing special equipment to walk, but the correlation was lower ( $r=+0.149$ ,  $p<0.0001$ ,  $N=2,622$ ). Among men, having arthritis also was positively associated with needing special equipment to walk ( $r=+0.240$ ,  $p<0.0001$ ,  $N=2,418$ ). Among men, having diabetes mellitus also was positively related to needing special equipment to walk, but the correlation was lower ( $r=+0.161$ ,  $p<0.0001$ ,  $N=2,418$ ).

**Conclusions:** This study shows that among women and men, having arthritis is more strongly associated with needing special equipment to walk than having diabetes mellitus. Further research is needed to explore the possible effects of having arthritis and chronic co-morbid conditions on level of impairment.

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#### EFFECT OF WEATHER CONDITIONS ON PATIENTS WITH HIP OSTEOARTHRITIS

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**Purpose:** Patients frequently assert that weather conditions influence osteoarthritis (OA) symptoms. However there is little scientific evidence on this topic. Previous studies have showed conflicting outcomes. The aim of this study is to assess the influence of weather circumstances on patients' OA symptoms.

**Methods:** For this study we used the data from 222 patients with hip OA who participated in a randomized controlled trial (RCT) that assessed the effectiveness of glucosamine. These patients were included from general practices in the area of Rotterdam, the Netherlands. Because the results of this RCT showed that glucosamine showed no effect on the symptoms and radiographic progression of hip OA, the analyses were performed on the total patient population.

The primary outcome measures were the WOMAC subscores for pain, function and stiffness and hip pain severity during the previous week measured with a visual analogue scale (VAS, range 0–100). Outcomes were obtained every 3 months during a follow-up of 24 months.

The local weather variables of the patients' residences were retrieved from the Royal Netherlands Meteorological Institute and included: temperature, wind speed, sun hours, precipitation, barometric pressure and relative humidity. The mean of these weather variables for one, two and seven days preceding the questionnaire dates (from all nine 3-month questionnaires) were collected.

For data-analyses the linear mixed model analysis for repeated measurements was used which was adjusted for age, gender, body mass index and OA factors: localized versus generalized OA, radiologic severity of OA (Kellgren-Lawrence grading 1 versus  $\geq 2$ ), duration of OA complaints, unilateral versus bilateral hip OA, use of analgesics and use of glucosamine.

**(Preliminary) results:** The mean weather variables over two and seven days did not show an association with pain severity or WOMAC pain score.

However, the weather variables over one day showed the following associations:

Binary analyses: An increase of relative humidity was associated with a higher WOMAC pain score (regression coefficient 0.09, 95%CI 0.02–0.16) and a higher WOMAC function score (regression coefficient 0.04 95%CI –0.02–0.10); an increase of wind speed with a lower WOMAC function score (regression coefficient –0.21, 95%CI –0.42–0.01); an increase of barometric pressure with a higher WOMAC function score (regression coefficient 0.07, 95%CI 0.02–0.12).

Multivariate analyses: An increase of relative humidity was associated with a higher WOMAC pain score and an increase of barometric pressure with a higher WOMAC function score.

Currently we are performing additional sensitivity analyses in order to evaluate intra-individual changes in pain severity and WOMAC scores.

**Conclusions:** An increase of relative humidity of one full day before filling in questionnaires is associated with a higher WOMAC pain score and an increase of barometric pressure with a higher WOMAC function score. The mean weather variables at two and seven days before filling in questionnaires did not influence OA symptoms.

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#### POPULATION-BASED ESTIMATES OF THE INCREASED RISK FOR SICK LEAVE AND DISABILITY PENSION AMONG PATIENTS WITH KNEE OSTEOARTHRITIS

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**Purpose:** To investigate the extent of sick leave and disability pension in patients with knee osteoarthritis (OA) and to compare these figures with the general population using prospectively ascertained cohort data.

**Methods:** Using the Skåne Health Care Register we identified all subjects seeking health care in primary, secondary, or in hospital care (including joint replacement surgery), registered with the diagnosis of OA of the knee (ICD-10 code M17) at least once during the period of 1998–2009. We also required subjects to be aged 16–64 years and resident in the Skåne County during 2009 via cross-linking with population records. Using subjects' unique personal identification number, we then linked year 2009 social insurance data administered by the Swedish Social Insurance Agency (SSIA) – an agency which is responsible for all sickness benefit exceeding 14 days and disability pension payments. First, we calculated the share of male and female knee OA patients who during 2009 had received either sickness benefit or received disability pension payment. Second, we estimated the increase in risk for having received sickness benefit or disability pension payment during 2009 compared to the general population in Skåne County aged 16 to 64 years ( $n=789\ 366$ ) standardised for age. In addition, for 2009 we calculated the mean number of days with sickness benefit or disability pension compensated by SSIA per subject with knee OA. We did the same for all residents in Skåne County and calculated age-standardised sick day ratios and their 95% confidence intervals (95% CIs). To estimate the proportion of the total number of sick leave and disability pension days attributable to knee OA (or its associated comorbidities), we calculated the total amount of days generated by knee OA patients and subtracted the total amount of days expected (assuming the same rate of sick leave/disability pension as in the general population standardised for age and sex). We then divided the remaining share with the total amount of days for the county to calculate the proportion of days specific to knee OA patients.

**Results:** We identified 15 345 persons (49.6% women) who had been diagnosed with knee OA during the last 12 years and were at working age and resident in Skåne during 2009. They had a mean (SD) age of 55 (8.2) years for women and 53 (9.2) years for men. More women than men with knee OA had received sickness benefit or disability pension payment during the year 2009, 48% vs. 31% ( $p<0.001$ ). Compared to the general population the risk for having had one or more episodes of sick leave was 1.82 (95% CI 1.73–1.91) for women and 2.03 (95% CI 1.92–2.14) for men and the risk for disability pension was 1.54 (95% CI 1.48–1.60) for women and 1.36 (95% CI 1.28–1.43) for men. The mean (SD) numbers of sick days (including days of sick leave and of disability pension) per knee OA patient and year was 114 (155) days for women and 63 (124) days for men. The overall age-standardised (net) sick day ratio for sick leave for patients with knee OA was 2.07 (95% CI 2.06–2.08) for women and 2.18 (95% CI 2.17–2.19) for men. For disability pension the corresponding ratios were 1.52 (95% CI 1.52–1.53) for women and 1.29 (95% CI 1.28–1.29) for men. Of all sick leave and disability pension in the entire population, 2.0% of days were estimated to be attributable to knee OA (or its associated comorbidity). For sick leave the proportion attributable to knee OA was 3.1%, and the corresponding proportion for disability pension was 1.7%.

**Conclusions:** Patients with knee OA have an almost two-fold increased risk for sick leave and about 40–50% increased risk for disability pension compared to the general population. Further, in the Swedish population about 2% of the total amount of sick days in the society is attributable to knee OA or its associated comorbidities.